

REMARKS

Claims 53, 60-63 and 66 are amended. Claims 53-55 and 60-69 are pending in the application.

Each of claims 53-55, 60, 62, and 64-69 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dunlop, U.S. Patent No. 5,590,389. The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 53-55, 60, 62, and 64-69 are allowable over Dunlop for at least the reason that the reference fails to disclose or suggest each and every limitation in any of those claims.

As amended, each of independent claims 53 and 66 recites a physical vapor deposition target consisting essentially of an alloy of copper, Tc and optionally one or more of Mo, Re, and Ti. Each of these independent claims further indicates that the total amount of alloying elements is from less than 1.0 at% to 0.001 at%. Dunlop discloses targets comprising a metal which can include aluminum, copper, titanium, silicon, zirconium, tungsten, tantalum, platinum, gold, niobium, rhenium, scandium, cobalt, molybdenum and hafnium (col. 3, ll. 65 through col. 4, ll. 14). Dunlop does not disclose or suggest an alloy comprising Tc. Further, Dunlop does not disclose or suggest the recited target consisting essentially of copper alloyed with Tc and optionally one or more of Ti, Mo and Re, with a total concentration of the alloying elements of from less than 1.0 at% to 0.001 at%. Accordingly, independent claims 53 and 66 are not rendered obvious by Dunlop.

Claims 60 and 62 are amended to properly depend from independent claim 53.

Dependent claims 54-55, 60, 62, 64-65, and 67-69 are allowable over Dunlop for at least the reason that they depend from corresponding allowable base claims 53 and 66.

Claims 61 and 63 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dunlop in view of Weber, U.S. Patent No. 4,786,469, and JP 49007777 ('777). Claims 61 and 63 are amended to properly depend from claim 53. As discussed above, independent claim 53 is not rendered obvious by Dunlop.

Weber discloses a copper-based material which contains each of four components (a), (b), (c) and (d) (col. 2, ll. 2-22 and the abstract). Weber indicates that component (a) can be titanium and/or zirconium and must be present for effective refinement (col. 2, ll. 3-8 and 41-47). Because Weber specifically indicates that titanium and/or zirconium must be present in the copper-based materials of the invention, such disclosure does not disclose or suggest a copper material having an absence of purposefully added titanium and/or zirconium. Weber further discloses that the amount of component (a) should be from 0.01 to 0.1%, by mass (col. 3, ll. 23-33). The Weber requirement of from 0.01 to 0.1% of at least one of titanium and/or zirconium with zirconium being more effective than titanium (col. 2, ll. 49-50) does not suggest the recited copper alloy which consists essentially of copper and specifically recited elements from a group which does not include titanium or zirconium. In fact, the specific requirement of titanium and/or zirconium for effective grain refinement as disclosed in Weber teaches away from a copper alloy which does not purposefully include from 0.01 to 0.1% of titanium and or zirconium. Accordingly, Weber cannot properly be combined as a basis of a 103 rejection as suggesting the recited copper materials consisting essentially of copper alloyed with from less than 1.0 at% to 0.001 at% of other elements comprising Tc and optionally one or more of Mo, Ti and Re.

The Examiner indicates at page 6 of the present action that applicant has a burden

of showing the basic and novel characteristic of the claimed composition "i.e. a showing that the introduction of these components would materially change the characteristics of applicant's composition" (referring to the use of the expression "consisting essentially of" which limits the scope of the claim to "specified ingredients of those that do not materially affect the basic and novel characteristics of a composition"). Even if Weber were available as a proper basis of a 103 rejection, Weber itself provides the showing of materiality since Weber indicates that one or both of titanium and/or zirconium is required in the grain refined copper-based metals, indicating that an absence of titanium and zirconium would render the Weber invention unsuitable for its intended purpose.

As indicated at page 4 of the Action, '777 is cited to show a copper alloy containing Ti. However, as combined with Dunlop, the '777 disclosure of an alloy comprising Ti does not contribute toward suggesting the claim 53 recited alloy containing Tc. Accordingly, independent claim 53 is not rendered obvious by the cited combination of references. Dependent claims 61 and 63 are allowable over the cited art for at least the reason that they depend from allowable base claim 53.

For the reasons discussed above pending claims 53-55 and 60-69 are allowable. Accordingly, applicant respectfully requests formal allowance of pending claims 53-55 and 60-69 in the Examiner's next action.

Respectfully submitted,

Dated: August 20, 2003

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